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09/607,921	06/30/2000	Hiroaki Yasuda	Q58681	9683

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EXAMINER

LU, TOM Y

ART UNIT PAPER NUMBER

2621

DATE MAILED: 05/19/2004

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/607,921

Applicant(s)

YASUDA, HIROAKI

Examiner

Tom Y Lu

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The amendment and written response filed on March 22, 2004 has been entered.
2. Claims 19-26 are added.
3. Claims 1-26 are pending.

Response to Arguments

4. Applicant's arguments filed on March 22, 2004 have been fully considered but they are not persuasive.

The Honda Reference:

- a. Applicant argues the Honda reference fails to teach or suggest performing image outputting with the image output device of the one original image signal having been transferred, *prior to the operation-processed image signal being obtained from the predetermined operation processing*. In conclusion, applicant argues the Honda reference does not anticipate all the limitations cited in claims.
- b. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "performing image outputting with the image output device of the one original image signal having been transferred, *prior to the operation-processed image signal being obtained from the predetermined operation processing*") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Art Unit: 2621

- c. Applicant's arguments, see Remarks, page 9, filed on March 22, 2004, with respect to the rejection(s) of claim(s) 7 under 35 U.S.C. 102 (b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ito et al (U.S. Patent No. 5,291,403).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-6, 8-9, 11, 16-18 and 24-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Honda (U.S. Patent No. 5,233,989).

- a. Referring to Claim 1, Honda discloses feeding a plurality of original image signals (optical images at column 4, line 14) representing radiation image information (X-ray images, column 4, line 13), which have been fed out from an image signal input apparatus (X-ray tube, column 4, line 10), into an operation processing device (a combination of blocks 8-14 shown in figure 1 corresponds to the claimed "operation processing device"); performing predetermined operation processing on the plurality of the received original image signals in the operation processing device to obtain an operation-processed image signal (mixture signal S_m at column 4, line 57 is the claimed "an operation-processed image signal", also see figure 1); transferring at least one original image signal, which is among

the plurality of the original image signals, to an image output device (original signal X_i as shown in figure 1 is transmitted to display unit 16); performing image outputting with the image output device and in accordance with the one original image signal having been transferred (displaying on a display unit is the claimed "performing image outputting"); after the operation-processed image signal has been obtained from the predetermined operation processing, feeding the operation-processed image signal into the image output device (mixture signal S_m is obtained after blocks 8-14); and performing image outputting with the image output device and in accordance with the received operation-processed image signal (mixture signal S_m is transmitted to the display unit 16 for displaying, see figure 1).

- b. Referring to Claim 2, Honda discloses where the operation processing device is located on the side of the image output device (see figure 1, processing blocks 8-14 are located on the side of display unit 16); the plurality of the original image signals are transferred to the operation processing device; and the operation processing is performed on the plurality of the transferred original image signals in the operation processing device (plurality of original images are processed in blocks 8-14).
- c. Referring to Claim 3, Honda discloses where the operation processing device is located on the side of the image signal input apparatus (processing blocks 8-14 are located on the side of X-ray tube 1); the operation-processed image signal, which has been obtained from the operation processing device, is transferred to

Art Unit: 2621

the image output device; and the image outputting is performed with the image output device and in accordance with the operation-processed image signal having transferred (mixture signal Sm is transmitted and displayed on the display unit 16).

- d. With regard to Claim 4, all limitations are addressed in Claim 1.
- e. With regard to Claim 5, all limitations are addressed in Claim 2
- f. With regard to Claim 6, all limitations are addressed in Claim 3.
- g. With regard to Claim 8, all limitations are addressed in Claim 1.
- h. Referring to Claim 9, Honda discloses wherein the transfer device comprises a network (the link between blocks 5 to 6, 6 to 16 are the claimed transfer device, which connects the TV camera 3 all the way to the display unit 16, such connection is to be considered as a network).
- i. Referring to Claim 11, Honda discloses wherein the image signal input apparatus comprises a CR apparatus (X-ray tube 1 is a CR apparatus).
- j. With regard to Claim 16, see explanation in Claim 9.
- k. With regard to Claim 17, see explanation in Claim 9.
- l. With regard to Claim 18, see explanation in Claim 9.
- m. Referring to Claim 24, Honda teaches displaying original image and subtraction image together on the display unit 16.
- n. With regard to Claim 25, see explanation in Claim 24.
- o. With regard to Claim 26, see explanation in Claim 24.

Art Unit: 2621

6. Claims 7, 13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Ito et al (U.S. Patent No. 5,291,403).

- a. Referring to Claim 7, Ito discloses an image signal input apparatus for feeding a plurality of original image signals obtained at a same time representing radiation image information (see figure 2, radiation images 41 and 42 are obtained at the same time, column 2, lines 65-67), and an operation processing device for performing predetermined operation processing on the plurality of the original image signals to obtain an operation-processed image signal (image 46 is the claimed operation-processed image signal, subtracting 71 is the claimed "operation processing device").
- b. Referring to Claim 13, Ito discloses wherein the image signal input apparatus comprises a CT scanner (column 5, line 7, a stimuable phosphor sheets are used in CT scanners).
- c. Referring to Claim 14, Ito discloses wherein the image signal input apparatus comprises a CR apparatus (column 5, line 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2621

7. Claims 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Honda in view of Luo et al (U.S. Patent No. 5,901,240). The arguments in Paragraph 5 above as to the applicability of Honda are incorporated herein.

- a. Referring to Claim 10, Honda discloses using X-ray tube 1 as shown in figure 1. However, Honda does not teach using a CT scanner. Luo at column 5, line 14, teaches using a CT scanner to obtain digitized X-ray images. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a CT scanner. One of ordinary skill in the art would have been motivated to do this because a CT scanner is just another means of acquiring radiation images. In addition, Luo at column 5, lines 13-15 teaches using a diagnostic scanner like CT produces an electronic x-ray image which is digitized, which eliminates the A/D converter 5 in Honda's system.

8. Claims 12, 15 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda. The arguments in Paragraph 5 above as to the applicability of Honda are incorporated herein.

- a. Referring to Claim 12, Honda discloses display unit 16. Even though Honda does not explicitly teach such display unit is a liquid crystal display, a person of ordinary skill in the art would be motivated to use such display because it saves space.
- b. With regard to Claim 15, see explanation in Claim 12.
- c. Referring to Claim 19, Honda teaches having a switch element 15, which is trigger by the completion of the subtraction process, to display both original

image and subtraction image on the display 16 at the same time. It would have been an obvious of design choice to modify the Honda reference by displaying the original image first on the display unit before the completion of subtraction process, since applicant has not disclosed that having original image displayed before the completion of the subtraction process would post any signification advantages nor would solve any problems and it appears that displaying the original image and subtraction image at the same time would perform equally well for the viewers, who wish to see the original image and subtraction image on the same display.

d. With regard to Claim 20, see explanation in Claim 19.

e. With regard to Claim 21, see explanation in Claim 19.

9. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda in view of Ito (U.S. Patent No. 5,291,403). The arguments in Paragraph 5 above as to the applicability of Honda are incorporated herein.

a. Referring to Claim 22, Honda discloses inputting a plurality of radiation images from an image acquisition apparatus, and outputting at least one original image to display unit 16, and outputting a subtraction image, which is based on at least two original images, to display unit 16. However, Honda does not disclose adding an image signal obtained from an upper surface side of a stimuable phosphor sheet to an image signal obtained from a lower surface side of the stimuable phosphor sheet. Ito teaches using a stimuable sheet to obtain a high energy image 42 and a low energy image 41, and superposing two images to obtain a superposition

Art Unit: 2621

image 44 during a subtraction process as shown in figure 2. At the time the invention was made, a person of ordinary skill in the art would have been motivated to do this because Ito at column 8, lines 21-22, teaches the superposition of the images 41 and 42 includes less noise component than the images 41 and 42 alone and posts advantages for the subsequent processes.

- b. Referring to claim 23, Ito discloses performing a masking operation on each of the image signals obtained from the upper and lower surface sides of the stimuable phosphor sheet (see figure 2, (subtraction 71 is the claimed "masking operation").

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Art Unit: 2621

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom Y Lu whose telephone number is (703) 306-4057. The examiner can normally be reached on 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tom Y. Lu



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